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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,760	02/03/2006	Driss Stitou	032013-113	4201
23911 7590 01/05/2009 CROWELL & MORING LLP INTELLECTUAL PROPERTY GROUP P.O. BOX 14300 WASHINGTON, DC 20044-4300				
EXAMINER				
ALI, MOHAMMAD M				
ART UNIT		PAPER NUMBER		
3744				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/521,760

**Applicant(s)**

STITOU ET AL.

**Examiner**

MOHAMMAD M. ALI

**Art Unit**

3744

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-13 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 03 February 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "several hollow plates containing the respective sorbents, the plates of one reactor alternating with the plates of other" for claim 12 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: Several hollow plates containing respective sorbents, the plates of one reactor alternating with the plates of the other..

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 3, 4, 6, 8, 10 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Goetz Vincent (5,964,097). Goetz, Vincent discloses a method of refrigeration using a thermo chemical system comprises three reversible phenomena involving the gas G in three chambers (18 and or16), (12) and (10), the respective equilibrium temperatures TE(18), TE(10) and TE(12) at a given pressure being such that TE(18 and or16) state in which the three chambers are at ambient temperature and at the same pressure in a first step, the chamber (12) is isolated and the chambers (18) and (10) are brought into communication (The valves 22, 24, 26, 28, 30 and pipes 32 and 34 connection system are so arrange the system can be placed at any desires connection position) in order to carry out the exothermic synthesis in (10), the heat produced being absorbed by the chamber (12); in a second step, the chamber (10) is

isolated and the chambers (18 and or 16) and (12) are brought into communication in order to carry out the exothermic synthesis in (12), the heat produced being absorbed by the chamber (12); and in a third step, the three chambers are brought into communication and thermal energy is supplied to the chamber (12) by heater (36) in order to carry out the exothermic decomposition steps in (10) and in (12), for the purpose of regenerating the installation, which is then left to return to the ambient temperature. See Fig. 1-5, abstract and , column 2, line 58 to column 4, line 55.

Regarding claim 1, Goetz et al disclose that four valves 24, 26, 28 and 30 makes it possible to connect either of the reactors 10, 12 selectively to the condenser 16 and to the evaporator 18 via pipes 32 and 34. (See column 3, lines 3-6).

Regarding claim 2, Goetz et al disclose that at initial state the valves are 22, 24, 26, 38 and 30 are closed and the chambers 12 and 10 contains their respective S2 and S1 in the state lean in Gas because salts S2 and S1 are not being heated or cooled.

Regarding claim 3, Goetz et al disclose that the reversible phenomenon in the reactors 12 and 10 can be chosen from reversible chemical reactions between the gas from evaporator 18 and a solid salt (S2, S1) in the reactors 12 and 10.

Regarding claim 4, Goetz et al disclose that reversible phenomenon in the device evaporator 18 or condenser 20 is a liquid to gas phase or vice versa because gas refrigerant is converted to liquid in the condenser 16 also liquid refrigerant can be converted to gas refrigerant in the condenser and same is the case with the evaporator 18.

Regarding claim 6, as the valves 24, 26, 28 and 30 are selectively controllable the Fig. 1 of Goetz et al is capable to meet the limitations of claim 6.

Regarding claim 8, Goetz et al disclose condense 16 contains liquid.

Regarding claim 10, Goetz et al disclose that reactor 12 is places inside the reactor 10.

Regarding claim 11, Goetz et al disclose that the reactor 12 and 10 are concentric, reactor 12 is being placed inside the reactor 10.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 7 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goetz, Vincent. Goetz, Vincent discloses the invention substantially as claimed as stated above stated steps such as the adsorption of gas on solid falls within the realm of common knowledge as obvious mechanical expedient and this is illustrated by Goetz et al which teach the use of the reactors 10, 12 in various ways by desired opening closing the valves 22, 24, 26, 28 and 30. Therefore, Goetz et al obviously read the above claims.

Regarding claim 5, it is obvious that Goetz et al disclose that the reversible chemical reaction in the condense or evaporator happens absorption of refrigerant gas by the liquid refrigerant happens to present in the condenser 16 and/or evaporator 18.

Regarding claim 7, Goetz et al disclose that device 16 or 18 is in direct contact with liquid refrigerant which is obviously equivalent to water because water is considered as a liquid refrigerant.

Regarding claim 13, Goetz et al disclose that when liquid refrigerant is changing phase in the evaporator to a gaseous evaporator it is obvious that liquid refrigerant can change phase from liquid refrigerant to gaseous refrigerant when the evaporator absorbs heat from the ambient environment from 1 to 10 degree higher the temperature of the liquid refrigerant present in the evaporator.

#### ***Allowable Subject Matter***

Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Response to Arguments***

Applicant's arguments filed 10/08/08 have been fully considered but they are not persuasive. The Applicant argues that Goetz discloses a process comprises running of a first reactor by making its salt react with the gas between the pressure of the enclosure designed to receive the gas and the pressure of the enclosure designed to deliver the gas and simultaneously, running the second reactor, -----. The Examiner

disagrees. However, Goetz clearly states that first and second reactors are run simultaneously. (col. 2, lines 35-42). The Examiner agrees that disclosure but in addition Goetz et al also disclose that a set of four valves 24, 26, 28 and 30 makes it possible to connect either of the reactors 10, 12 selectively to the condensers 16 and the evaporator 18 via pi. (See column 3, lines 3-6).

Therefore, it transpires that two reactors simultaneously or singly can be connected with condenser 16 and or evaporator 18 and thus the limitations of the claims are meeting by Goetz et al. Therefore, Rejections are ok.

The rejections have been reviewed on the basis of further ground of rejection and hence further non-final is made for giving further chance to put the claims in allowable form.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad M. Ali whose telephone number is 571-272-4806. The examiner can normally be reached on maxiflex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl J. Tyler can be reached on 571-272-4808. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mohammad M Ali/  
Primary Examiner, Art Unit 3744